University of Technology, Sydney

Investigating Collaboration in Art and Technology

A dissertation submitted for the degree of

Doctor of Philosophy in Computing Science

By

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CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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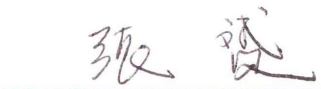

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Abstract

With the rapid development in computer technology in recent years, the arrival of digital media and computational tools has opened up new possibilities for creative practice in art, where collaboration between digital art practitioners and computer technologists often happens. The study of interdisciplinary collaboration in art and technology offers great opportunities for investigation of creativity and the role of new technology.

This thesis presents an investigation into interdisciplinary collaboration between artists and technologists based on a series of case studies selected from actual art-technology projects. Two analysis techniques were used in this research: context analysis, which provides the breadth of the analysis, and protocol analysis, which provides the depth of the analysis. During the analysis process, two coding schemes, which are the context analysis coding scheme and the protocol analysis coding scheme, were developed, evaluated and refined over a series of case studies. Using the coding schemes, the results of the analysis drawn from different cases are compared and the implications are discussed. The findings provide insights into art-technology collaboration in the creative process, in particular, the features of communication and the role of mediation tools.

The outcomes of this thesis are:

- The analysis framework, consisting of the context analysis coding scheme and the protocol analysis coding scheme, which has been developed and applied to a series of case studies and has been tested for effectiveness and reliability.
- The findings, with the assistance of the analysis framework, provide a better understanding of the nature of the interaction between artists and technologists during a creative process. This includes:

- How communication behaviour is distributed between artists and technologists;
- What the role of computer tools is during the creative process and how these tools can affect artists' and technologists' communication behaviour;
- How the collaborative creative process is facilitated by external mediation tools, such as computers, interactive artefacts and physical objects.

There are two main contributions of the thesis: first, the analysis framework can serve as a powerful and robust analysis tool for future research in the filed of art-technology collaboration or other related domains. Second, the findings provide a better understanding of the collaborative process, in particular, how mediation tools support creative practice between artists and technologists.

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